



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,537	06/10/2005	Christoph Raisch	DE920020035US1	4243
29683	7590	10/02/2008	EXAMINER	
HARRINGTON & SMITH, PC 4 RESEARCH DRIVE, Suite 202 SHELTON, CT 06484-6212			NGUYEN, MINH TRANG T	
			ART UNIT	PAPER NUMBER
			2619	
			MAIL DATE	DELIVERY MODE
			10/02/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/538,537	Applicant(s) RAISCH, CHRISTOPH	
	Examiner Minh-Trang Nguyen	Art Unit 2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-23, 25, 26 and 29-43 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 21-23, 25, 26 and 29-43 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

Response to Arguments

1. Applicants' arguments filed 06/19/2008 have been fully considered but they are not persuasive.

With respect to claim 21, Applicants argue that Chen et al. do not disclose “**separating requests issued by the SAN Management server into at least two groups, a first group is processed by the Fibre Channel adapter and the SAN on behalf of the SM Management client** in place of operating system images which share the same Fibre Channel Adapter, corresponding to a trusted path, and **a second group is processed by the operating system images** without the need to send or receive requests to or from the Fibre Channel adapter and the SAN”.

In response, it is noted that Chen et al disclose, in Fig. 2B, Fig. 3 and paragraphs [0037-0039], that “the **first group** is processed by Fibre Channel adapter 160, and the SAN 240 on the behalf of the SM Management client (e.g., the client computer 210), in place of operating system images which share the same Fibre Channel Adapter (see Fig. 3, the client computers 210 share the same Fibre Channel Adapter 160) , corresponding to a trusted path (see paragraph [0038], e.g., the **first type of protocol for SAN clients is a “Device Level Access Protocol”, “DLAP”**), and a second group (e.g., the **second type of protocol for the NAS clients is the “File Level Access Protocol”, “ FLAP”**) is processed by the operating system images without the need to send or receive requests to or from the Fibre Channel adapter and the SAN (see paragraph [0038-0039]). Therefore, the first group (e.g., SAN clients) uses the first type of data storage protocol, “FLAP” for transmitting, responding, and requesting for data to be read or written on a block level to storage devices 290 and 170, and the second group, (e.g., the NAS clients) use the

Art Unit: 2619

second type of data storage protocol, such as FLAP for accessing to files and folders on file system without the need to send the requests to or from the Fibre Channel adapter 160 and the SAN 240).

With respect to dependent claims 22, 25, 26, Applicants argue that Chen et al do not the limitations recited in the claims. In response, Chen et al disclose the limitations recited in the claims 22, 25, 26 in Figs. 2B, 3, 4 and the detail descriptions of Figs. 2B, 3, 4. For example, Chen et al disclose, on paragraph [0055], that SAN management client 205 requests device level access (i.e., routing all information unsolicited message generated in the SAN and Fibre Channel adapter) to storage server 240 (i.e., the SAN Management server). See also the above arguments with respect to claim 21.

With respect to claims 40-43, Iwatani discloses the limitations recited in the claims 40-43 in Fig. 3 and the detail descriptions of Fig. 3. For example, Iwatani discloses a first interface to couple to a SAN Management client (i.e., the interface between SAN Integrated Management Mechanism 500 and SAN Management client 128). The SAN Management client 128 coupled to SAN via SAN adapter 411, 412, or 413. Iwatani discloses the trusted operating system on paragraphs [0058], [0060] (i.e., the WWN and PID information held by the FCA and HBA is secured). Iwatani discloses a second interface to couple to at least one untrusted operating system, said at least one untrusted OS being coupled to the SAN via the SAN adapter and via a unit for regulating access to the SAN (see paragraph [0066], i.e., there are some devices that have no San management mechanism among the host devices making up the SAN. There are also devices which do not provide the aforementioned host affinity function even inside the storage device).

DETAILED ACTION

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 21, 22, 25, 26, 29, 30 and 32-39 are rejected under 35 U.S.C. 102(e) as being anticipated by Chen et al [2004/0233910 A1].

As to claim 21, Chen et al disclose a method to operate a storage area network (SAN) in a server environment in which multiple operating system images (see Fig., 2B, paragraph [0037], e.g., Solaris, Linux, NT) share one Fibre Channel adapter (see Fig., 2B, paragraph [0037]), the method comprising:

managing the SAN by a SAN Management software with at least a SAN Management server (see Fig., 2B, item 240, paragraph [0037]) and at least a SAN Management client (see Fig., 2B, item 210, paragraph [0037]) with a communication path to said Fibre Channel Adapter (see Fig., 2B, item 170, paragraph [0037]);

separating requests issued by the SAN Management server into at least two groups (see Fig. 5, 6), a first group is processed by the Fibre Channel adapter and the SAN on behalf of the SM Management client in place of operating system images which share the same Fibre Channel Adapter (see Fig. 5, paragraph [0059]), corresponding to a trusted path, and a second group is processed by the operating system images without the need to send or receive requests to or from

Art Unit: 2619

the Fibre Channel adapter and the SAN(see Fig. 6, paragraph [0060]) .

As to **claim 22**, Chen et al further disclose that routing all information contained in unsolicited messages generated in the SAN and Fibre Channel adapter to the SAN Management server by the SAN management client (see paragraph [0055]).

As to **claim 25**, Chen et al further disclose that accessing all information relevant for billing individual operating system images generated in the Fibre Channel adapter and SAN only through the SAN Management client on the trusted path (see paragraph [0055]).

As to **claim 26**, Chen et al further disclose that SAN Management server providing authorization data to the SAN Management client to execute requests from said first group, and said SAN Management server and SAN Management client providing authorization data to the OS images to execute requests from said second group, and operating the OS images so that they are only enabled to execute a limited command set in the SAN (see Fig. 4, paragraph [0044]).

As to **claim 29**, see similar rejection as to claim 21.

As to **claim 30**, see similar rejection as to claim 22.

As to **claim 32**, see similar rejection as to claim 25.

As to **claim 33**, see similar rejection as to claim 25.

As to **claim 34**, see similar rejection as to claim 26.

As to **claim 35**, see similar rejection as to claim 26.

As to **claim 36**, see similar rejection as to claim 26.

As to **claim 37**, Chen et al further disclose that the SAN Management server is equipped with a SAN Management Client and a Remote Access Server (RA Server), further comprising an operation of maintaining authorization data for accessing the RA Server in at least one of the

Art Unit: 2619

SAN Management server and the SAN Management Client (see paragraph [0035]-[0039]).

As to **claim 38**, Chen et al further disclose an operation of operating the SAN Management Client as a router for requests from the SAN Management server to the RA server (see paragraph [0035]-[0039]).

As to **claim 39**, Chen et al further disclose that the RA Server comprises a telnet/sshd server (see paragraph [0035]-[0039]).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 23 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al [2004/0233910 A1] in view of Rabe et al [7,194,538].

As to **claim 23**, Chen et al disclose all claim limitations mentioned above with respect to claim 21.

Chen et al do not expressly disclose that using Host Bus Adapter Application Program Interface binding requests to modify a firewall, and operating the communication path from the SAN Management client to the Fibre Channel adapter so that it cannot be modified or eavesdropped by an operating system image.

Rabe et al disclose the above recited limitations (see Figs. 9, 10, col. 27, lines 46 to col. 28, line 31).

Art Unit: 2619

At the time of invention, it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of Rabe et al into Chen et al. The suggestion/motivation would have been to provide a secure storage from storage devices to hosts within the SAN as suggested by Rabe et al on col. 26, lines 57-59.

As to **claim 31**, see similar rejection as to claim 23.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claim 40-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Iwatani [2001/0054093].

As to **claim 40**, Iwatani discloses a storage area network (SAN) Management server (see Fig. 3, item 500, paragraph [0052]), comprising:

a first interface to couple to a SAN Management client that comprises a trusted operating system (OS), said SAN Management client being coupled to a SAN via a SAN adapter (see Fig. 3, items 500, 120, 301, 411, 412, 421, paragraphs [0052]-[0055], [0058], [0060]); and

a second interface to couple to at least one untrusted operating system, said at least one untrusted OS being coupled to the SAN via the SAN adapter and via a unit for regulating access to the SAN (see paragraph [0066]);

Art Unit: 2619

where said SAN Management server comprises logic for distinguishing a first set of requests from a second set of requests, where the first set of requests are processed in cooperation only with said SAN Management client, and where the second set of requests are processed at least in part by the at least one untrusted operating system (see paragraphs [0060]-0066]).

As to **claim 41**, Iwatani discloses that said first set of requests comprise at least one of a SAN request and a SAN adapter request (see paragraphs [0060]-0062]), and said second set of requests comprise a request for untrusted OS configuration data (see paragraphs [0065]-0066]) .

As to **claim 42**, Iwatani discloses a storage area network (SAN) Management client, comprising:

- a trusted operating system (OS) (see Fig. 3, items 120, 301, paragraphs [0053]-[0054]);
- a first interface to couple to a SAN via a SAN adapter (see Fig. 3, paragraph [0048]); and
- a second interface to couple to a SAN Management server and to at least one untrusted operating system coupled to the SAN via the SAN adapter and via a controller for regulating access to said SAN (see Fig. 3, paragraphs [0048], [0052], [0066]);

said SAN Management client comprising logic for processing a first set of requests identified by the SAN Management server in cooperation only with said SAN Management server, where a second set of requests identified by the SAN Management server are processed at least in part by the at least one untrusted OS (see paragraphs [0060]-0066]); where said first set of requests comprise at least one of a SAN request and a SAN adapter request (see paragraphs [0060]-0062]), where said second set of requests comprise a request for untrusted OS configuration data (see paragraphs [0065]-0066]).

Art Unit: 2619

As to **claim 43**, Iwatani discloses that the controller operates on top of said trusted operating system of said SAN Management client (see paragraphs [0048], [0052], [0060]-0062]).

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh-Trang Nguyen whose telephone number is (571)270-5248. The examiner can normally be reached on Monday to Friday 7:30AM to 5:00PM EST, first Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chirag G. Shah can be reached on 571-272-3144. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2619

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. N./

Examiner, Art Unit 2619

/Chirag G Shah/

Supervisory Patent Examiner, Art Unit 2619